UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,510	02/19/2002	Seung June Yi	2101-3187	3418

35884 7590 06/29/2007

LEE, HONG, DEGERMAN, KANG & SCHMADEKA
660 S. FIGUEROA STREET
Suite 2300
LOS ANGELES, CA 90017

EXAMINER	
WONG, BLANCHE	

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
06/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/076,510	YI ET AL.	
	Examiner	Art Unit	
	Blanche Wong	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *32-56* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *32-56* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 40 is objected to because of the following informalities: With regard to claim 40, Examiner suggests replacing "a reporting period" in line 8 with "the reporting period" in consistent with "a reporting period" introducing in line 3. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 32-56** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin (U.S. Pat No. 6,640,105) in view of Sihlbom (U.S. Pat NO. 6,442,220).

With regard to claim 32, Shin discloses a traffic volume measurement method for controlling at least one radio bearer, comprising:

receiving, from an upper layer **(RRC)("MAC is provided with measurement parameters ... from the RRC", col. 6, line 25; see also "[MAC] receives measurement numeral parameters (THu, THl) from RRC", S10 in Fig. 6,)**, measurement information **(parameters)** including a lower and an upper value **(the upper critical value THu and the lower critical value THl, col. 5, lines 24-25)** of permissible traffic volume for a transport channel;

receiving buffer occupancy **(state of each of the transport RLC buffers)** from a radio link control (RLC) layer for each logical channel **("Basically, the MAC is provided with ... a state of each of the transport RLC buffers ... corresponding to respective radio access bearers from the RLC", col. 6, lines 29-30)** related to the transport channel **("the transport MAC buffers ... which corresponds to the traffic volume transported through the CCTrCH", col. 6, lines 32-35)**;

measuring traffic volume for the transport channel **("...MAC measures ... the transport MAC buffers...", col. 6, lines 32-34)** by summing the buffer occupancy for each logical channel related to the transport channel **("...MAC measures the sum of data existing at the transport RLC buffers...", col. 6, lines 31-32)**;

comparing the measured traffic volume to the lower or upper value **(...MAC compares the traffic volume measurement ... to the ... THu and ... THl", col. 6, lines 35-38)**; and

reporting buffer occupancy information to the upper layer **(RRC) (see also "The MAC also provides a measurement report service, reporting traffic volume values ... and the like to the RRC", col. 2, lines 25-28)**, if the measured traffic volume is larger than the upper value or lower than the lower value **("... falls outside the range between ... THu and ... THl, the the result of the traffic volume measurement ... is provided to the RRC ...", col. 6, line 42-46)**.

However, Shin fails to explicitly show the buffer occupancy for each logical channel related to the transport channel including an amount of data protocol data units (PDUs) and an amount of control PDUs.

Sihlbom discloses the buffer occupancy for each logical channel related to the transport channel **(a centralized MAC, col. 1, line 26)** including an amount of data protocol data units (PDUs) and an amount of control PDUs **(control and data PDUs, col. 1, lines 31-32)**.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine a centralized MAC with control and data PDU as taught in Sihlbom with Shin, specifically within Shin's MAC transport buffers, in order to provide for a centralized MAC support.

With regard to claim 33, Shin further discloses a buffer occupancy information reported to the upper layer that includes buffer occupancy information for each of the at least one radio bearer mapped to the transport channel **("... MAC is provided with a RLC PDU from each of the RLCs which transports different radio access bearers ...", col. 6, line 26-28)**.

With regard to claim 34, Shin further discloses each operation of the method is performed by a MAC entity **(MAC)**.

With regard to claims 35, Shin further discloses a buffer occupancy information **(state of each of the transport RLC buffers)** that includes at least one of a buffer occupancy **(the transport RLC buffers)**, an average of buffer occupancy **(averages, col. 5, line 39)**, and a variance of buffer occupancy **(deviations, col. 5,line 40)**, for

each of the at least one radio bearer **(see also "... amounts of data corresponding to respective radio access bearers ....", col. 5, lines 36-41)**.

With regard to claim 36, Shin further discloses a measurement of the traffic volume that is performed every transmission time interval (TTI) **(a given time period, col. 5, line 39)**.

With regard to claim 37, Shin further discloses a buffer occupancy for each logical channel **(each of the the transport RLC buffers) ("Basically, the MAC is provided with ... a state of each of the transport RLC buffers ... corresponding to respective radio access bearers from the RLC", col. 6, lines 29-30)** related to the transport channel **("the transport MAC buffers ... which corresponds to the traffic volume transported through the CCTrCH", col. 6, lines 32-35)** represents an occupancy of an RLC buffer of an RLC entity **(RLC)**.

With regard to claim 38, Shin further discloses a time interval **(a given time period, col. 5, line 39)** for calculating at least one of an average **(averages, col. 5, line 39)** and a variance **(deviations, col. 5,line 40)** of the buffer occupancy for each logical channel related to the transport channel.

With regard to claim 39, Shin further discloses an upper layer that is a RRC layer **(RRC)**.

With regard to claim 40, Shin discloses

receiving measurement information **(measurement parameters)** including a reporting period **(a given time period, col. 5, line 39)** from an upper layer **(RRC)("MAC is provided with measurement parameters ... from the RRC", col. 6, line 25; see also "[MAC] receives measurement numeral parameters (THu, THI) from RRC", S10 in Fig. 6,)**;

receiving buffer occupancy **(state of each of the transport RLC buffers)** for each logical channel **("Basically, the MAC is provided with ... a state of each of the transport RLC buffers ... corresponding to respective radio access bearers from the RLC", col. 6, lines 29-30)** related to the transport channel **("the transport MAC buffers ... which corresponds to the traffic volume transported through the CCTrCH", col. 6, lines 32-35)** from a radio link control (RLC) layer;

reporting buffer occupancy information to the upper layer **(RRC) (see also "The MAC also provides a measurement report service, reporting traffic volume values ... and the like to the RRC", col. 2, lines 25-28)** when the reporting period **(a given time period, col. 5, line 39)** elapses.

However, Shin fails to explicitly show the buffer occupancy for each logical channel related to the transport channel including an amount of data protocol data units (PDUs) and an amount of control PDUs.

Sihlbom discloses the buffer occupancy for each logical channel related to the transport channel **(a centralized MAC, col. 1, line 26)** including an amount of data

protocol data units (PDUs) and an amount of control PDUs **(control and data PDUs, col. 1, lines 31-32)**.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine a centralized MAC with control and data PDU as taught in Sihlbom with Shin, specifically within Shin's MAC transport buffers, in order to provide for a centralized MAC support.

With regard to claim 41, Shin further discloses each operation of the method is performed by a MAC entity **(MAC)**.

With regard to claim 42, Shin further discloses a buffer occupancy information reported to the upper layer that includes buffer occupancy information for each of the at least one radio bearer mapped to the transport channel **("... MAC is provided with a RLC PDU from each of the RLCs which transports different radio access bearers ...", col. 6, line 26-28)**.

With regard to claim 43, Shin further discloses a buffer occupancy information **(state of each of the transport RLC buffers)** that includes at least one of a buffer occupancy **(the transport RLC buffers)**, an average of buffer occupancy **(averages, col. 5, line 39)**, and a variance of buffer occupancy **(deviations, col. 5,line 40)**, for each of the at least one radio bearer **(see also "... amounts of data corresponding to respective radio access bearers ....", col. 5, lines 36-41)**.

With regard to claim 44, Shin further discloses a buffer occupancy for each logical channel **(each of the the transport RLC buffers) ("Basically, the MAC is provided with ... a state of each of the transport RLC buffers ... corresponding to respective radio access bearers from the RLC", col. 6, lines 29-30)** related to the transport channel **("the transport MAC buffers ... which corresponds to the traffic volume transported through the CCTrCH", col. 6, lines 32-35)** represents an occupancy of an RLC buffer of an RLC entity **(RLC)**.

With regard to claim 45, Shin further discloses an upper layer that is a RRC layer **(RRC)**.

With regard to claim 46, Shin further discloses a time interval **(a given time period, col. 5, line 39)** for calculating at least one of an average **(averages, col. 5, line 39)** and a variance **(deviations, col. 5,line 40)** of the buffer occupancy for each logical channel related to the transport channel.

With regard to claim 47, Shin discloses

transferring measurement information **(measurement parameters)** to a media access control (MAC) entity **(MAC) ("MAC is provided with measurement parameters ... from the RRC", col. 6, line 25; see also "[MAC] receives measurement numeral parameters (THu, THl) from RRC", S10 in Fig. 6,)**, including information on whether to perform an event-triggered measurement mode **(event**

trigger mode, col. 5, line 16) or a periodic measurement mode **(periodic mode, col. 5, line 11)**;

receiving buffer occupancy **(state of each of the transport RLC buffers)** from from the MAC entity according to the measurement mode **(RLC)**, the buffer occupancy information **(sum of data)** being obtained by using buffer occupancy of each logical channel mapped to a transport channel **("...MAC measures the sum of data existing at the transport RLC buffers...", col. 6, lines 31-32)**;

performing reconfiguration of the at least one radio bearer based on the buffer occupancy information **("Then, the RRC undertakes a procedure for controlling the radio access bearers based on the traffic volume measurement ...", col. 6, lines 47-49)**

However, Shin fails to explicitly show the buffer occupancy for each logical channel related to the transport channel including an amount of data protocol data units (PDUs) and an amount of control PDUs.

Sihlbom discloses the buffer occupancy for each logical channel related to the transport channel **(a centralized MAC, col. 1, line 26)** including an amount of data protocol data units (PDUs) and an amount of control PDUs **(control and data PDUs, col. 1, lines 31-32)**.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine a centralized MAC with control and data PDU as taught in Sihlbom with Shin, specifically within Shin's MAC transport buffers, in order to provide for a centralized MAC support.

With regard to claim 48, Shin further discloses a buffer occupancy information reported to the upper layer that includes buffer occupancy information for each of the at least one radio bearer mapped to the transport channel **("... MAC is provided with a RLC PDU from each of the RLCs which transports different radio access bearers ...", col. 6, line 26-28)**.

With regard to claim 49, Shin further discloses when the measurement mode is the event-trigger measurement mode **(event trigger mode, col. 5, line 16)**, the measurement information further including an upper limit and a lower limit **(THu and THl, col. 5, lines 20-21)**.

With regard to claim 50, Shin further discloses

measuring traffic volume **("...MAC measures ... the transport MAC buffers...", col. 6, lines 32-34)** by summing the buffer occupancy for each logical channel mapped to the transport channel **("...MAC measures the sum of data existing at the transport RLC buffers...", col. 6, lines 31-32)**; and

comparing the measured traffic volume to the lower or upper value **(...MAC compares the traffic volume measurement ... to the ... THu and ... THl", col. 6, lines 35-38)**.

With regard to claim 51, Shin further discloses each operation of the method is performed by a MAC entity **(MAC)**.

With regard to claim 52, Shin further discloses when the measure mode is the periodic measurement mode **(periodic mode, col. 5, line 11)**, the measurement information further includes a reporting period **(periodically, col. 5, line 15) (it is inherent that there is a reporting period and it is cyclical)**.

With regard to claim 53, Shin further discloses checking whether a reporting period is elapsed in the MAC entity **(it is inherent that a reporting period has to elapse in the MAC entity during which the MAC reports to the RRC)**.

With regard to claim 54, Shin further discloses an upper layer that is a RRC layer **(RRC)**.

With regard to claim 55, Shin further discloses a buffer occupancy information **(state of each of the transport RLC buffers)** that includes at least one of a buffer occupancy **(the transport RLC buffers)**, an average of buffer occupancy **(averages, col. 5, line 39)**, and a variance of buffer occupancy **(deviations, col. 5,line 40)**, for each of the at least one radio bearer **(see also "... amounts of data corresponding to respective radio access bearers ....", col. 5, lines 36-41)**.

With regard to claim 56, Shin further discloses the buffer occupancy **(transport MAC buffers)** of each logical channel mapped to the transport channel **("the transport MAC buffers ... which corresponds to the traffic volume transported through the**

CCTrCH", col. 6, lines 32-35) is transmitted from a radio link control (RLC) layer **(RLC)** to the MAC entity **(MAC) ("Basically, the MAC is provided with ... a state of each of the transport RLC buffers ... corresponding to respective radio access bearers from the RLC", col. 6, lines 29-30)**.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blanche Wong whose telephone number is 571-272-3177. The examiner can normally be reached on Monday through Friday, 830am to 530pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BW
June 24, 2007

Daniel J. Ryman
Patent Examiner
AU 2616